City of Scottsdale

Energy Efficiency
International Residential Code (2003)

(Amended by City of Scottsdale, Ord. # 3505)

The city adoption of the 2003 edition of the International Residential Code (IRC) contains requirements for energy-efficient building envelopes and the installation of energy-efficient mechanical, lighting and power systems. These requirements are addressed in Chapter 11 of the IRC and the International Energy Conservation Code (IECC). These codes establish minimum requirements for energy-efficient buildings using prescriptive and performance-based methods. It makes possible the use of new materials and innovative techniques including renewable energy such as solar.

Compliance for detached one- and two-family dwellings shall be demonstrated by one of the following options (IRC amended Sec. N1101.2.1):

1. Meeting the amended requirements of Chapter 11 of the *International Residential Code* (IRC) for buildings with a glazing area that does not exceed 25% of the gross area of exterior walls (see Table N1102.1 below and compliance worksheet on p. 2); or
2. Meeting RES*check* energy compliance software tool for 2000 *International Energy Conservation Code* (IECC) - (free download at www.energycodes.gov/index.stm); or
3. Meeting the systems analysis or performance approach of the IECC; or
4. Participation in the Energy Star, Engineered for Life, Environments for Living or other nationally recognized third party energy programs approved by the building official; or
5. Participation in the City of Scottsdale Green Building Program.

"Simplified Prescriptive Building Envelope Thermal Component Criteria"
(IRC amended Table N1102.1)

Scottsdale, AZ (zone 3)	MAXIMUM GLAZING U-FACTOR	MAXIMUM GLAZING SOLAR HEAT GAIN COEFFICIENT (SHGC)	MINIMUM INSULATION *R*-VALUE [(hr·ft^2·ºF)/Btu]					
			Ceilings	Walls	Floors (above unconditioned space)	Basement walls	Slab perimeter *R*-value and depth	Crawl space walls
15% glazing or less	0.60	0.40	R-30	R-13	R-19	R-8	R-0	R-0
25% glazing or less	0.45	0.40	R-38	R-19	R-19	R-8	R-5 Full depth of stem	R-5 Full depth of stem

Effective - 9/16/03 (Ord. #3505)

Plan Chk. No. _____

Energy Compliance
Worksheet for Prescriptive Requirements

2003 International Residential Code – Chapter 11

Use this worksheet for buildings with a glazing area that does not exceed 25% of the gross area of exterior walls. See reverse side for other compliance options.

Builder Name _____ Date _____

Project Address _____

Submitted By _____ Phone Number _____

PROPOSED	REQUIRED

Glazing Area

100 X _____ ÷ _____ = _____ %
Glazing Area / Gross Wall Area / Percentage of Glazing

Max. Glazing Area	
0-15%	16 -25%

R-Value

Description	Proposed R-Value
Ceiling	R -
Wall	R -
Floor Over Unconditioned Space	R -
Basement Wall	R -

Min. R-Value	
R-30	R-38
R-13	R-19
R-19	
R-8	

Mass wall R-values shall be permitted to meet IRC Sec. N1102.1.1.1

Solar Heat Gain Coefficient (SHGC) and U-Factor

Description	Proposed SHGC	Proposed U-Factor
Glazing (includes skylight & doors w/glazing)		U -
Opaque Door	---------	U -

Max. SHGC	Max. U-Factor	
0.40	U-0.60	U-0.45
-----	U-0.35 (R-3)	

SHGC values can be an area-weighted-average (IRC Sec. N1102.2)

Equipment Efficiency

Proposed Cooling and Heating
Cooling _____ SEER (Seasonal Energy Efficiency Ratio)
Heating _____ HSPF (Heating Seasonal Performance Factor)
Gas Heating _____ AFUE (Annual Fuel Utilization Efficiency)

Efficiency Rating Required
12 SEER min.
6.8 HSPE min.
78% AFUE min.

Statement of Compliance: The proposed building design represented in these documents is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the requirements of the International Residential Code or the International Energy Conservation Code.

_____ _____ _____
Designer or Builder / Company Name / Date

rev. 3/3/04